

## The Effectiveness of Educational Intervention in the Health Promotion in Elderly people

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### Abstract

**Background:** More than 8% of Iran's populations are elderly. The greatest challenge in this generation is improvement of health and quality of life. So we decided to perform an interventional study with the aim of promoting the health of the elderly.

**Methods:** This study was a community interventional in Ekbatan Complex. Subjects were elderly. At first, need assessment was done with the participation of 200 elderly by questionnaire. Based on the need assessment, we designed the educational interventions in different fields such as nutrition, mental health, and exercise and then, we compared the results.

**Results:** One hundred elderly participated as interventional group. There were 86% women and 24% of men. Almost 59% were in the 60-69 age group. More than ¼ of the subjects were university graduates. Pre and post interventional groups were matched in age, education and gender. Regarding nutrition, second priority food in women aged 60-69 was rice and after the intervention, it was changed to vegetables ( $P=0.05$ ) but in other age groups and in the men's groups no difference were noted. Aerobic exercises in women has increased after the intervention ( $P=0.01$ ). With regards to mental health, life satisfaction among women under study has increased from 68% to 90% after the intervention ( $P=0.01$ ). Feeling happy most of the time has increased from 53% to 83% in women aged 60-69 ( $P=0.01$ ) and in men from 64% to 83% ( $P=0.05$ ) respectively.

**Conclusion:** Policymakers should design long-term educational programs to promote the elderly lifestyles.

**Key words:** Intervention, Health promotion, Elderly

### Introduction

The successful expansion of Primary Health Care, improvements in socio-economic conditions and finally the emergence of new technologies in prevention, diagnosis and treatment of diseases are the most important factors in the increase of the adult population aging 60 yr and above which is defined by the WHO as elderly (1). Based on this definition, more than 600 million of the world's population are elderly and this figure will be doubled by 2025 and will be reached two billion by 2050 (2).

In Iran, the elderly composes 8% of the population which is about 5.5 million people (3). Increasing elderly population especially in developing countries will result to an increase in non com-

municable diseases such as cardiovascular diseases, diabetes, Alzheimer, chronic respiratory diseases, and musculoskeletal disorders. In such manner, elderly supports in order to maintain healthy and appropriate lifestyle is the biggest challenge that the health care providers throughout the world have to face (2).

One of the recommendations of PAHO for problem solving in this group is the promotion of health knowledge, attitude and practice by implementing the research projects concerning geriatrics education (4).

Results from a review literature published in the United State showed that optimum nutrition and physical exercise have profound effects in the quality of life in every age more especially in the

elderly. Therefore, it is necessary to define ways of promoting health, nutrition and dietary allocations which has more influence in measuring the quality of life through research projects (5). In 2004 another research in United State showed the number of persons aged 75 and above have increased to 23% during 1999-2000 and it may be due to more tendency to exercise daily, use of vegetables and fruits, less tobacco and alcohol and more adherence to routine medical examinations (6). Another study was performed in Taiwan as a pre-post test aimed to measure the effectiveness of training programs to improve health elderly. The course contents include: healthy lifestyle, prevention of diseases, nutrition and appropriate exercises. Results of the post test showed that educational programs played an important role in promoting healthy behavior and awareness (7). Considering the above, after assessing the needs of the elderly group we decided to design intervention based on their needs and community mobilization in order to promote the elderly health level.

## **Materials and Methods**

This was an interventional study. After assessing elderly needs, interventional programs were implemented based on community mobilization and its effectiveness were evaluated. Ekbatan Complex is located in the western part of Tehran, Iran. Ekbatan characteristics such as high density populated community with an integrated structure, easy access to the community and its population, high homogenous in cultural and social level, having high per active groups and a humanitarian organizations led us to select it as the venue of our study. At first, we decided to absorb the participation of regional stockholders and key persons, and, then, the executive steps of project were determined with their participation. Elderly population census was performed with cooperation of local volunteers and a need assessment questionnaire was designed with the help of all stakeholders, geriatrist, and NGO representatives. The questionnaire included; demographic details, physical condition, mental health, recreational activities and nutrition. Training of the local volunteers on how

to perform the needs assessments and how to fill up the questionnaires were done by the research team members. After needs assessment, collected data was analyzed and appropriate educational interventions to improve health elderly was designed based on the results.

Volunteers were chosen according to the following criteria: over 40 yr old, having at least high school diploma and their motivation and interest in participatory activities. After interviewing candidates, 20 of them (male and female) were selected.

During a four-day training workshop, necessary instruction booklets were provided and due to question and answer sessions with various professionals, their problems were resolved.

After achieving necessary knowledge and skill requirement, the volunteers distributed their knowledge to all the elderly in Ekbatan in different levels of interventions which include:

1. Home visits and face to face elderly education
2. Referral to physicians- Referral is recommended while the volunteer- during the teaching sessions- finds out the elderly is experiencing some health problems which need more medical attention. Therefore, the volunteer must have done the necessary arrangements in order to refer the elderly to Shaheed Ghafari Health Center located in Ekbatan where a family physician was always available for any case of referral.
3. Education through distributing educational pamphlets to the elderly: In the initial phase of the study, educational materials were designed and prepared in order to support the volunteers. During the initial phase of the home visits, some volunteers encountered with elderly resistance to enter their homes. Therefore, it was decided that educational materials should be prepared in a very simple language that can be easily understood especially by those with primary education. In the case that performing face to face educational session in not possible, this method is the best suitable alternative. It should be noted that all cases who attended the study received the pamphlets.
4. Education through arranging a general meeting- question and answer session with the presence of the experts.

5. Attending exercising session- in addition to face to face education and distribution pamphlets, exercises session were performed in different study meeting

During nine months intervention, every elderly received at least four home visits. In this period, volunteers were also monitored through many different ways by the research team members and finally the effectiveness of the interventions was measured through a questionnaire. Elderly who received at least 3 pamphlets (out of 4) were given the questionnaire. A total of 100 men and women were selected to fill in the questionnaire.

### Sample size

In order to perform the preliminary assessments, 100 elderly men and 100 elderly women were selected as samples. This sample was enough to estimate an indicator of quality with a prevalence of 50%, 95% confidence and 10% accuracy. In order to evaluate the interventions, all elderly who have received at least 3 pamphlets and had appropriate cooperation with the research team members were selected to answer the questionnaire (100 males and females).

### Ethical Considerations

The study was approved by Tehran University of Medical Sciences and the National Ethical Committee of Medical Research. Informed consent was obtained from all participants and no personal identifier was recorded on the questionnaires.

### Results

Ekbatan complex has an approximately 60 thousand population and 2579 belongs to the elderly population of which 1227 are women and 1352 are male. In terms of age grouping, 45.5% are within the 60-69 yr, 38.7% are in the 70-79 age groups and the rest belongs to the 80 or above age group. Table 1 illustrates the socio-demographic characteristic of elderly in Ekbatan. The Results of elderly needs assessment are as follows:

Based on elderly opinions, 92% of women and 70% of men suffer from at least one disease and

involve its treatments. The prevalence of different disease such as hypertension, arthritis, diabetes mellitus in female is more than male. Psychologically, 70% of elderly people are satisfied with their lives and in 30% of them, lives are meaningless. Be worried about the bad event in future observed in 66/5% of elderly. More than 90% of them have enough free time which is spent in watching TV by 97% of them. Almost 67% of these elderly people do exercises. Related to nutrition, 88%-98% of elderly use all major food groups, red meat, and confectionaries are being used by 77% - 82%. According to needs assessment, the educational intervention related to mental health, leisure time, group activity and nutrition were designed (see method).

**Table 1:** Sociodemographic characteristic of elderly in Ekbatan Complex, Tehran, Iran

Characteristic	Female (n=103) %	Male (n=101) %
<b>Age (yr)</b>		
60-69	38.9	52.5
70-79	41.7	35.7
=>80	19.4	11.9
<b>Marital status:</b>		
Living with spouse	45.7	94
Single/death of spouse	46.6	3
divorced	7.7	3
<b>Education :</b>		
Illiterate	20.4	2
Under diploma	51.4	22.7
Diploma	17.5	30.7
higher	10.7	44.6
<b>Employment status:</b>		
With job/salary	55.3	98
No job/salary	44.7	2

**Table 2:** Frequency of elderly in Ekbatan Complex, Tehran, Iran according to age before and after the interventions-2006:

Characteristic	Before intervention (n=204)	After intervention (n=101)	P
<b>Female:</b>			
60-69	35	63.6	0.00
=>70	65	36.4	0.00
<b>Male :</b>			
60-69	46	50	NS
=>70	54	50	NS

NS=not significant

There was a significant difference in terms of age in women before and after the interventions ( $P=0.00$ ), therefore, in female group, variables under interventions in the age groups; 60-69 and 70 and above were compared (Table 2).

Pre and post interventional groups were matched in age, education and gender.

### Mental Health

In this domain, indicators such as; life satisfaction, life is meaningful, does not worry about the future, and feeling of happiness were assessed before and after the interventions. In the women's group, the statistical difference related to life satisfaction was meaningful. Having a meaningful life and a feeling of happiness in all age groups has increased after the interventions ( $P=0.00$ ).

In women aged 70 and older, Not being worried about the future, had a significant difference before and after the interventions ( $P=0.004$ ). About 53% of the women aged 60-69 before the interventions have asserted that, they were happy most of the time and this percent had increased to 78 after the interventions ( $P=0.01$ ).

In the men's group, "the feeling of happiness" had a significant difference before and after the interventions ( $P=0.05$ ).

### Leisure time

The leisure time in elderly women aged 60-69, after intervention was less than before ( $P=0.01$ ).

Sport activities in elderly women have increased after the intervention ( $P=0.01$ ) and in terms of the different exercise movements, results showed that walking, after the interventions have lowered and aerobics and warming up movements have increased. Results of Chi-square test showed that there is significant difference between the women's group before and after the interventions ( $P=0.00$ ) (Table 3).

In the men's group, spending in leisure time and performance of exercises, had no significant statistical difference before and after the interventions but in terms of the different types of exercises, results showed that walking after the interventions has decreased and warm-ups and aerobics increased ( $P=0.00$ ).

**Table 3:** Frequency of the different exercises performed by elderly living in Ekbatan Complex, Tehran, Iran before and after interventions -2006

Sex /Age	Exercise movements	Before intervention (%)	After intervention (%)
Female: 60-69 yr	- Walking	94.4	46.9
	- aerobics	5.6	20.4
	- swimming and etc.	0	32.7
=>70 yr	- Walking	97.2	32.1
	- aerobics	2.8	35.7
	- swimming and etc	0	32.1
Male : =>60 yr	- Walking	90.4	45.8
	- aerobics	0	20.8
	- swimming and etc	9.6	33.3

### Group Activities

In terms of participation in group activities and being a member of a club, there was significant statistical difference among elderly women before and after the interventions in such a way that before the intervention, 16.7% and after 61.5% of elderly women in group activities involved ( $P=0.00$ ). In elderly men, there wasn't

any significant statistical difference before and after the intervention.

### Nutrition

After intervention, women's group have reduced consumption of harmful foods such as red meat and sweets and increased consumption of beneficial foods such as vegetables, but there is no sig-

nificant statistical difference before and after the interventions. In terms of food preferences, in the women's group, in all age groups, the food most preferred before and after the interventions was bread but regarding the second preference among women aged 60-69, there was a significant difference before and after the interventions ( $P=0.05$ ) in such way that before the interventions the second food preference was rice and after the interventions their preference was changed to vegetables. With regards the third preference which is red meat, there

was no change before and after the interventions. In the men's group, there isn't any significant difference in consumption of foods or its preference before and after the interventions. Bread, white meat and dairy products are the men's food preferences respectively. It is interesting to note that the third food preferences for the women and the men were completely different, while the women preferred red meat; the men on the other hand preferred dairy products. Table 4 shows the summary result of significant variables on elderly in Ekbatan.

**Table 4:** Summary of significant variables on elderly men and women aged 60-69 and 70 years and above in Ekbatan Complex, Tehran, Iran

Variables under study	P-value Elderly men	P-value Women (60-69) yr	P-value Women (70+) yr
Life satisfaction	N.S	P=0.01	P=0.00
Having a meaningful life	N.S	P=0.00	P=0.00
Not worried about the future	N.S	NS	P=0.00
Feeling of happiness	P=0.05	P=0.00	P=0.02
Hope for the future	N.S	P=0.01	N.S
Spend time in leisure activities	N.S	P=0.01	N.S
Performance of exercise	N.S	P=0.00	P=0.03
Different types of exercises	P=0.00	P=0.00	P=0.00
Consumption of healthy foods	N.S	N.S	N.S
Avoidance of detrimental foods	N.S	N.S	N.S
First food priority	N.S	N.S	N.S
Second food priority	N.S	P=0.05	N.S
Third food priority	N.S	N.S	N.S
Participation in group activities	N.S	P=0.00	P=0.00
Club membership	N.S	P=0.00	P=0.00

NS= not significant

## Discussion

One of the best sources of population information to determine its needs and problems are community (5). Selection of representatives from the community to assess their needs usually due to being time consuming is used less (6). In this method, we used community mobilization and participation of all stakeholders to design the study, assess the health needs and implement the interventional phase. The purpose of this way, is building the communities capacity to solve their problem and the main advantage is the community ownership (8).

The present study had some limitation in the study design. Our participants were unlikely to be fully representative of these groups in Ekbatan. Inadequate cooperation of the elderly during interventions reduced sample size of interventional group and it limits the comparison between before and after groups. In addition, our study was based on self-reported information, which could be biased by the participant's recall.

According to the result of this project, educational interventions are a suitable method to promote health elderly regarding to do simple exercise movement and mental health. In women group, due to

higher life expectancy, therefore more disability, lower educational level and high number of widow, living alone and financially dependent, it is needed to pay more attention to this high risk group.

The result of study in Taiwan revealed that the scores for health promotion knowledge and positive health behavior in elderly due to educational intervention were high among subjects who were aged 60-69 yr, were married, lived with family members and had higher education level (7). It seems that, these factors are important in educational program and our study confirmed it.

In related to healthy nutrition, unfortunately, in our study, the educational interventions were not very effective but in another community-based intervention study in rural Bangladesh, the result showed that the educational intervention was effective to improve of healthy nutrition. This study concludes that provision of community-based health education intervention might be a potential public health initiative to enhance the health-related quality of life in old age (9).

The result of our study, shows that, mass media is one of the most important tools for disseminating educational information related to health (10) specially in elderly group. Therefore, policymakers should design long-term educational programs to promote the elderly lifestyles.

### **Ethical Consideration**

All Ethical issues (such as informed consent, conflict of interest, plagiarism, misconduct, co-authorship, double submission, etc) have been considered carefully.

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